

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 B01D71/02 B01D53/22 B01J23/00 C01B13/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 C01B B01D B01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 766 330 A (THE STANDARD OIL COMPANY) 2 April 1997 (1997-04-02)	1,3-6, 13,14, 17-23 15,16
Y	page 17, line 19 - line 27; claims page 13, line 4 - line 23	
A	DATABASE WPI Week 200344 Derwent Publications Ltd., London, GB; AN 2003-457993 XP002288952 & CN 1 403 196 A (HUANG Z) 19 March 2003 (2003-03-19) abstract	1,3,13, 14
A	EP 0 908 227 A (THE STANDARD OIL COMPANY) 14 April 1999 (1999-04-14) claims ----- -/-	1,3,13, 14

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the International filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the International filing date but later than the priority date claimed

T later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the International search

20 January 2005

Date of mailing of the International search report

27/01/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Bogaerts, M

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 663 231 A (AIR PRODUCTS AND CHEMICALS, INC.) 19 July 1995 (1995-07-19) cited in the application claims	1, 3, 4, 13, 14
A	HAIHUI WANG ET AL: CHEM. COMMUN., 2002, page 1468-1469, XP001166951 cited in the application abstract	3-8
A	Z.SHAO ET AL: "investigation of the permeation behavior and stability of a Ba _{0.5} Sr _{0.5} Co _{0.8} Fe _{0.0.203} (delta) oxygen membrane" JOURNAL OF MEMBRANE SCIENCE, vol. 172, no. 1-2, 2000, page 177-188, XP001166952 AMSTERDAM,NL cited in the application abstract	3-8
Y	HIROMICHI SAKAMOTO ET AL.: SCIENCE AND TECHNOLOGY OF ADVANCED MATERIALS, 20 January 2003 (2003-01-20), pages 69-76, XP008041732 cited in the application the whole document	15
Y	J.L. ROUSSET ET AL.: PHYSICAL REVIEW B, vol. 58, no. 4, 15 July 1998 (1998-07-15), pages 2150-2156, XP008041798 cited in the application the whole document	16

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0766330	A	02-04-1997	US 5306411 A	26-04-1994
			EP 0766330 A1	02-04-1997
			AT 152859 T	15-05-1997
			AT 218758 T	15-06-2002
			AU 6838290 A	04-07-1991
			CA 2032994 A1	28-06-1991
			CN 1055205 A ,B	09-10-1991
			CN 1221812 A ,B	07-07-1999
			CN 1221811 A ,B	07-07-1999
			CN 1227976 A ,B	08-09-1999
			CN 1227977 A	08-09-1999
			CN 1224080 A ,B	28-07-1999
			CN 1224081 A ,B	28-07-1999
			DE 69030651 D1	12-06-1997
			DE 69030651 T2	21-08-1997
			DE 69033969 D1	11-07-2002
			DE 69033969 T2	02-01-2003
			DK 766330 T3	07-10-2002
			EP 0438902 A2	31-07-1991
			ES 2100877 T3	01-07-1997
			ES 2177706 T3	16-12-2002
			JP 3129451 B2	29-01-2001
			JP 6056428 A	01-03-1994
			NO 905556 A	28-06-1991
			NZ 233786 A	26-10-1993
			NZ 236632 A	26-07-1994
			US 2003155254 A1	21-08-2003
			US 6287432 B1	11-09-2001
			US 5591315 A	07-01-1997
			US 5714091 A	03-02-1998
			US 6488739 B1	03-12-2002
			US 5723035 A	03-03-1998
			US 6544404 B1	08-04-2003
			US 5744015 A	28-04-1998
			US 6019885 A	01-02-2000
			US 6332968 B1	25-12-2001
			US 5693212 A	02-12-1997
			ZA 9010408 A	30-10-1991
			AT 137421 T	15-05-1996
			AU 5596290 A	29-11-1990
			CA 2017243 A1	25-11-1990
			CN 1048169 A ,B	02-01-1991
			DE 69026752 D1	05-06-1996
			EP 0399833 A1	28-11-1990
			EP 0673675 A2	27-09-1995
			JP 3101833 A	26-04-1991
			JP 3212304 B2	25-09-2001
			NO 902254 A	26-11-1990
CN 1403196	A	19-03-2003	NONE	
EP 0908227	A	14-04-1999	US 5723035 A	03-03-1998
			EP 0908227 A1	14-04-1999
			AU 706663 B2	17-06-1999
			AU 3045295 A	04-04-1996
			BR 9504113 A	01-04-1997
			CA 2158607 A1	24-03-1996
			CN 1127235 A	24-07-1996

BEST AVAILABLE COPY

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
EP 0908227	A	DE 69515586 D1	20-04-2000	
		DE 69515586 T2	26-04-2001	
		EP 0705790 A1	10-04-1996	
		ES 2145224 T3	01-07-2000	
		JP 8173776 A	09-07-1996	
		PL 310614 A1	01-04-1996	
		US 5714091 A	03-02-1998	
		US 6488739 B1	03-12-2002	
		US 6544404 B1	08-04-2003	
		US 5788748 A	04-08-1998	
		US 5648304 A	15-07-1997	
		US 5702999 A	30-12-1997	
EP 0663231	A	19-07-1995	US 5534471 A	09-07-1996
			CA 2139603 A1	13-07-1995
			DE 69508972 D1	20-05-1999
			DE 69508972 T2	12-08-1999
			EP 0663231 A2	19-07-1995